November/FY06

JOINT FORCES TRAINING BASE LOS ALAMITOS

California

Army Defense Environmental Restoration Program Installation Action Plan

FINAL 3 June 2006

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Statement of Purpose

The purpose of the Installation Action Plan (IAP) is to outline the total multi-year Installation Cleanup Program for an installation. The plan identifies environmental cleanup requirements at each site or area of concern, and proposes a comprehensive, installation-wide approach, with associated costs and schedules, to conduct investigations and necessary remedial actions.

In an effort to coordinate planning information between the restoration manager, U.S. Army Environmental Center (USAEC), JFTB Los Alamitos, NGB, executing agencies, and regulatory agencies, an IAP was completed. The IAP is used to track requirements, schedules and tentative budgets for all major Army installation cleanup programs.

All site-specific funding and schedule information has been prepared according to projected overall Army funding levels and is, therefore, subject to change.

The following persons contributed to the formulation and completion of this Installation Action Plan during the IAP Workshop held on 30 November 2005:

Company/Installation/Branch
Clayton Group

California Regional Water Quality Control Board

California National Guard - Los Alamitos

CA ARNG

JM Waller for CA ARNG

Engineering and Environment, Inc. for US Army Environmental Center

ICI for US Army Environmental Center

Acronyms & Abbreviations

AEDB-R	Army Environmental Database - Restoration
AOC	Area of Concern
AST	Aboveground Storage Tank
ATSDR	Agency for Toxic Substances and Disease Registry
BNA	Base Neutral Acid
BTEX	Benzene, Toluene, Ethylbenzene and Xylene
CA ARNG	California Army National Guard
CAP	Corrective Action Plan
CERCLA	Comprehensive Environmental Response Compensation and Liability Act
COC	Contaminants of Concern
CRP	Community Relations Plan
CRWQCB	California Regional Water Quality Control Board
CTC	Cost-to-Complete
cy	cubic yards
DA	Department of Army
DCE	Dichlorethylene
DERP	Defense Environmental Restoration Program (now ER,A)
DD	Decision Document
DDT	Dichlorodiphenyltrichloroethane
DPVE	Dual Phase Vacuum Extraction
DSERTS	Defense Site Environmental Restoration Tracking System (now AEDB-R)
EE/CA	Engineering Evaluation/Cost Analysis
EPA	(United States) Environmental Protection Agency
ER,A	Environmental Restoration, Army (formerly DERA)
FFA	Federal Facility Agreement
FFO	Fuel Farm Office
FFSRA	Federal Facility Site Remediation Agreement
FS	Feasibility Study
ft	foot
FY	Fiscal Year
gal	gallon
gpd	gallons per day
GRO	Gasoline Range Organics
GW	Groundwater
HRS	Hazard Ranking System
IAP	Installation Action Plan
IRA	Interim Remedial Action
IROD	Interim Record of Decision
IRP	Installation Restoration Program
IWTP	Industrial Wastewater Treatment Plant
JATO	Jet-assisted Take Off
JFTB	Joint Forces Training Base
K	$1,000
kg	kilograms

Acronyms & Abbreviations

LEA	Local Enforcement Agency
LTM	Long-term Management
LTO	Long-term Operation
MCL	Maximum Contaminant Level
mg	milligrams
MMRP	Military Munitions Response Program
msl	mean sea level
MW	Monitoring Well
NAS	Naval Air Station
NASA	National Aeronautical and Space Administration
NE	Not Evaluated
NFA	No Further Action
NGB	National Guard Bureau
NPDES	National Pollutant Discharge Elimination System
NOV	Notice of Violation
NPL	National Priorities List
OB/OD	Open Burning/Open Detonation
OU	Operable Unit
O&M	Operation & Maintenance
PAH	Poly Aromatic Hydrocarbons
PA	Preliminary Assessment
PBC	Performance-Based Contract
PCB	Polychlorinated Biphenyl
PCE	Perchloroethylene
POL	Petroleum, Oil & Lubricants
POM	Program Objective Memorandum (budget)
POTW	Public-owned Treatment Works
PP	Proposed Plan
PY	prior year
RA	Remedial Action
RA(O)	Remedial Action - Operation
RAB	Restoration Advisory Board
RC	Response Complete
RCRA	Resource Conservation and Recovery Act
RD	Remedial Design
REM	Removal
RFA	RCRA Facility Assessment
RI	Remedial Investigation
RIP	Remedy in Place
ROD	Record of Decision
RRSE	Relative Risk Site Evaluation
SARA	Superfund Amendments and Reauthorization Act
SI	Site Inspection
SVOC	Semi-Volatile Organic Compounds
SWMU	Solid Waste Management Unit
TAPP	Technical Assistance for Public Participation

Acronyms & Abbreviations

TCE	Trichloroethene
TCP	Trichloropropane
TPH-D	Total Petroleum Hydrocarbons as Diesel
TPH-G	Total Petroleum Hydrocarbons as Gasoline
TRPH	Total Recoverable Petroleum Hydrocarbons
TTLC	Total Toxic Leachable Concentration or Total Threshold Limit Concentration
ug/l	microgram per liter
USACE	United States Army Corps of Engineers
USACHPPM	United States Army Center for Health Promotion and Preventive Medicine
USAEC	United States Army Environmental Center
USAEHA	United States Army Environmental Hygiene Agency (now USACHPPM)
USATHAMA	United States Army Toxic and Hazardous Material Agency (now USAEC)
UST	Underground Storage Tank
VOC	Volatile Organic Compounds
WWTP	Wastewater Treatment Plant
yr	year

Installation Information

Installation Locale: Joint Forces Training Base, Los Alamitos (JFTB Los Alamitos) is located in northwestern Orange County, near the Los Angeles County and Orange County boundary line. JFTB Los Alamitos is also located approximately one mile northeast of the intersection of the 1-405 and 1-605 Freeways and occupies approximately 1,300 acres of near flat terrain. The area surrounding JFTB Los Alamitos is composed of six cities and has a population of approximately 600,000 residents.

The facility covers portions of Sections 28, 29, 30, 31, 32, and 33. Township 4 South, Range 11 West, based on the San Bernardino Baseline and Meridian. The geographic coordinates of the airfield reference point, which is the approximate center of Los Alamitos, is 33 degrees 47' 24" North Latitude and 118 degrees 03' 04" West I Longitude at an elevation of 21.16' above mean sea level.

Installation Mission: JFTB Los Alamitos is a Department of the Army owned facility that is operated under license to the State of California, for the use by the State Military Department, Office of the Adjutant General, and the California Army National Guard (CA ARNG). JFTB Los Alamitos is the state-coordinating center for the Governor's Office of Emergency Services and is a disaster support area. The facility at JFTB Los Alamitos consists of administrative and engineering offices, security, classrooms, training buildings, chapel, airfield, helicopter maintenance.

Lead Organization: National Guard Bureau

Lead Executing Agencies:
US Army Environmental Center

Regulatory Participation:
- California Environmental Protection Agency: Department of Toxic Substances Control, Region 1
- California Regional Water Quality Control Board, Santa Ana Region (CRWQCB)
- Orange County Health Care Agency, Public Health, Environmental Health, Hazardous Materials Surveillance Sections, South Coast Air Quality Management District
- California Integrated Board California Integrated Waste Management Board

NPL Status:
- Not on NPL, under CERCLA, with off-post contamination.
- Notice of Violations for UST, 1988 (three for the JP-4 fuel farm site). Removed 1999.
- Lead Regulatory Agency. California Environmental Protection Agency, California Regional Water Quality Control Board assumed responsibility as the lead regulatory agency on 1 July 1997.
- Regulatory Driver: 40 CFR 300 and 10 USC Chapter 2701-2708 and 2810 for Defense Environmental Restoration Program for Non-NPL under CERCLA/SARA
- Regulatory Driver: 40 CFR 260-262 Determination of solid and hazardous wastes, I Storage and Disposal of Wastes

- Regulatory Driver: 1) Clean Water Act, 2) Porter-Cologne Water Quality Control Act and 3) Title 23, Division 3, Chapter 16 (UST regulations) and Title 27, Division 2 (solid waste regulations) of the California Code of Regulations
- Regulatory Driver: 40 CFR 122-125 NPDES Discharge Requirements for on- and off-post discharges

RAB/TRC/TAPP STATUS: In FY95, the Restoration Advisory Board was established and continues to meet on a quarterly schedule.

Program Summaries:

IRP:

Contaminants of Concern: POL, VOCs, SVOCs, Metals, PCBs, and Phenols
Media of Concern: Soil and Groundwater
Estimated date for RIP/RC: 2007/2009
Funding to Date (thru FY05): $12,598.0K
Current year funding (FY06): $10,580.405
CTC (FY07+): $3,785.0K

MMRP:

LATB-001-R-01, Phelan Small Arms Range (belongs to the 63d RSC)
Contaminants of Concern: Lead
Media of Concern: Soil
Estimated date for RC: 2017
Funding to Date (thru FY05): $25K
Current year funding (FY06): $0K
CTC (FY07+): $928K

Cleanup Program Summary

Historic Activity: In the 1920s and 1930s, the site of the current JFTB Los Alamitos was used almost exclusively for agricultural purposes. According to JFTB Los Alamitos records, the War Department purchased large tracts of land in the area of the cities of Los Alamitos and Seal Beach for the development of a naval base. The U.S. Department of the Navy began land clearing and construction of buildings for an air station and weapons depot in early 1941.

JFTB Los Alamitos was originally commissioned as Naval Air Station (NAS) Los Alamitos in May 1942. NAS Los Alamitos played an integral role in the air defense of the west coast of the United States during World War II, as well as serving as a primary training facility for the Navy. Naval fighter, reconnaissance, and light bomber crews were trained and stationed at the facility. Approximately 130 buildings, including housing for 2,200 naval personnel, were built during the early 1940s. Other structures included hangars, equipment and maintenance shops, a laundry, warehouses, mess halls, headquarters buildings, a gymnasium, chapel, and small hospital.

Activities conducted at NAS Los Alamitos included general airfield operations typical of pre-jet propulsion aircraft use. In addition, the air station also had ordinance storage facilities, rifle range, motor repair shops, gasoline and oil stations, aviation fuel dispensing, washracks and grease racks, laundry, and fire station. The air station was equipped with both storm and sanitary sewer systems and a wastewater treatment plant that performed secondary water treatment and included a sludge lagoon. The JFTB Los Alamitos water was supplied by two of eight drinking water wells on-site. Water is currently supplied by the Orange County Water District. During the 1940s, the airfield had underground storage capacity for 160,000 gallons of aviation fuel in approximately 17 underground storage tanks (USTs).

After World War II, the U.S. Department of the Navy continued to make improvements to the airfield, base housing, and maintenance buildings. Control of NAS Los Alamitos changed from the Navy to the National Guard during the 1970s. Because of that change, very few records exist that provide details of facility improvements made from the early 1950s through the 1960s. These improvements included construction and expansion of the airfield runways, taxiways and apron surfaces, new hangars, maintenance buildings, a JP-4 jet fuel tank farm, new warehouse space, and personnel housing.

The NAS was used as a pilot-training station and aircraft-staging facility until 1970, at which time its flying units were relocated to other bases. In November 1972, NAS Los Alamitos was converted to the AFRC Los Alamitos. In August 1973, the CA ARNG took operational control of the facility. In July 1977, the AFRC Los Alamitos was transferred from the Department of the Navy to the Department of the Army by the House Armed Services Committee. Also in 1977, AFRC Los Alamitos was licensed to the state of California by the Department of the Army with the approval of the House Armed Services Committee. In August of that year, the CA ARNG was directed to be the host activity at the facility and was assigned the operational control of the installation. In July 2000, the name of AFRC Los Alamitos was changed to Joint Forces Training Base Los Alamitos. The

facility is currently undergoing additional improvements, including the construction of an operations building, hangar, fuel farm, and runway resurfacing.

JFTB Los Alamitos has served as host to the following tenant organizations since the early 1970s: Army National Guard units (principally the 40th Infantry Division Mechanized), reserve component units of the Army (principally the 63d ARCOM), Navy, Marine Corps, U.S. Department of Agriculture-Medfly Project, Civil Air Patrol, Army/Air Force Exchange Services and the Sea/Air Credit Union.

IRP

- Prior Year Progress: Completed the RI/FS and IRA/groundwater investigation for four sites. Continue to execute the RA(O) and developed a PBC strategy. The JP-4 and Fuel Farm Office DPVE systems were expanded. The CFR system was rebound tested and determined that closure was appropriate.
- Future Plan of Action: PBC was award in FY05.

MMRP

- Prior Year Progress: PA was completed at this site in August 2003.
- Future Plan of Action: The Phelan Small Arms Range will be transferred in the AEDB-R to the 63d RSC. The SI will begin in October of 2006.

JFTB LOS ALAMITOS

Installation Restoration Program

AEDB-RIRP Sites/Sites RC: 8/1

AEDB-R Site Types:

1 Fire/ Crash Training Area
2 Landfills
1 Storage Area
1 Underground Tank Farm
1 Contaminated Groundwater
1 Washrack
1 Small Arms Range

Contaminants of Concern: POL, VOCs, SVOCs, Metals, PCBs, and Phenols

Media of Concern: Groundwater and Soil

Completed REM/IRA/RA:

LAAFRC-010 - Subsite: Seabee Compound IRA, $670K
LAAFRC-002 - Subsite: South Landfill, $800K
LAAFRC-003 - CFR Training Pit, $1.71M

Total IRP Funding:

Prior Years (FY00-FY05): $12,598.0K
Current (FY06): $10,580.405
Future Requirements (FY07+): $3,785.0K

Duration of IRP:

Year of IRP Inception: 1989
Year of IRP RIP/RC: 2007/2009
Year of IRP Completion (including LTM): 2014

IRP Contamination Assessment

JFTB Los Alamitos has a total of 11 Army Environmental Database - Restoration (AEDB-R) sites including a fire/crash training area, a landfill, a washrack, a small arms range, a storage area, an underground tank farm, and contaminated groundwater. Twenty-nine areas of concern (AOCs) are distributed within the eleven AEDB-R sites.

AEBD-R #	AOC #		AOC Name	Comments
LAAFRC-001	AOC1	1A	JP-4 Tank Farm	Petroleum-Only AOC
LAAFRC-002	AOC2	2A	Wind Rose and Jet Engine Test Cell	
LAAFRC -002		2B1	North and South Landfills	OU-3
LAAFRC -002		2B2	Former Wastewater Treatment Systems	
LAAFRC -003	AOC3	3A1	New CFR Training Pit and Revetments	
LAAFRC -003		3A2	West End of the Flightline	
LAAFRC -003		3A3	Old CFR Training Pits	
LAAFRC -008	AOC4	4A	Building 158	Petroleum-Only AOC
LAAFRC -008		4B	Former Aviation Fuel Farm	Petroleum-Only AOC
LAAFRC - 008		4C	Former UST Sites	Petroleum-Only AOC
LAAFRC -010	AOC5	5A	Seabee Compound	
LAAFRC -008		5B	Fuel Farm Office	
LAAFRC -008		5C1	Nosedock 61 Hangar	Petroleum-Only AOC
LAAFRC -010		5C2	Nosedock 61 Clarifier	Petroleum-Only AOC
LAAFRC -010		5D1	ECS16	
LAAFRC -010		5D2	Vehicle Depot Clarifier	
LAAFRC -010		5D3	OMS-8 Clarifier	
LAAFRC -010		5D4	40th Military Police	
LAAFRC -005	AOC6	6A	Munitions Bunkers	
LAAFRC -008		6B1	Motor Pool	
LAAFRC -008		6B2	Flightline Pads 1 and 2	
LAAFRC -010		6C1	Hangar 2	
LAAFRC -010		6C2	Paint Spray Booth	
LAAFRC -010		6D	Gymnasium Clarifier	
LAAFRC -008		6E	Hangar 1	
LAAFRC -005	AOC7	7A	Former Rifle Range	Soil Only (OU-2)
LAAFRC -011	AOC8	8A	Pesticide Use Areas	Soil Only (OU-2)
LAAFRC -008	AOC9	9A1	Building 34	Petroleum-Only AOC
LAAFRC -010	AOC9	9A2	Building 35	

To facilitate data evaluation and remedial design, the base has been divided into three Operable Units (OUs): water (OU-1), soil (OU-2), and landfill water and soil (OU-3). OU-1 consists of all surface water and groundwater at the JFTB Los Alamitos with the exception of the landfill. OU-2 consists of all soil at the JFTB Los Alamitos with the exception of the landfill. OU-3 consists of the landfill.

Chlorinated solvents and petroleum-related contaminants are the primary contaminants of concern at JFTB Los Alamitos. In 1994, a preliminary assessment/site inspection (PA/SI) indicated widespread chlorinated solvents in shallow groundwater at ten AOCs. Petroleum-only related contaminants were detected at seven AOCs. Eleven AOCs were found to have impacted the shallow groundwater with both solvents and petroleum-related contaminants.

In August of 1993, results of the PA conducted at the JFTB Los Alamitos were reported in the *Preliminary Assessment at the Joint Forces Training Base Los Alamitos, California,* (Clayton, 20 August 1993). The PA was conducted to assess the potential contamination of groundwater, surface water, soil, and air and to assess the need for additional site assessment actions. The PA Project Team inspected the facility, reviewed files, interviewed JFTB Los Alamitos staff, documented onsite observations, and evaluated existing data available for the facility. Results of the PA indicated that past and present operations at the site have involved use of materials that are now considered hazardous. The PA recommended that an SI be conducted.

In May 1996, results of the SI were reported in the *Site Inspection at the Joint Forces Training Base Los Alamitos, California* (Clayton, 9 May 1996). The SI was conducted to evaluate sites of concern that were identified during the PA. The SI included the collection of a limited amount of groundwater, surface water, and soil samples for laboratory analysis. The SI reported contamination present in nine AOCs and recommended a remedial investigation/feasibility study (RI/FS).

A phased approach has been used in conducting this RI. The field investigation was divided into three phases. This phased approach allows for flexibility and increased efficiency and effectiveness of data collection, with the goal of informed remedial action decisions.

The field investigation portion of Phase I was conducted from May of 1996 through early 1997. Phase I field investigation included the collection of a large amount of groundwater, surface water, and soil samples for laboratory analysis. Preliminary review of the Phase I data indicated that a Phase II field investigation is required to complete the definition of the nature and extent of contamination for all matrices sampled at the JFTB Los Alamitos. Phase II field sampling and reporting will be conducted in two parts: Phase IIA and IIB in a sequential manner. Each of the three OUs will be sampled and evaluated separately. Phase IIA and IIB and the Health Risk Assessment field sampling was complete in November 2001 and the reporting is planned for completion in FY02.

The City of Los Alamitos is in the Central Basin of the Los Angeles Coastal Basin in an area that, for purposes of political division, is termed the Orange County Groundwater Basin. Local water purveyors within the study area obtain more than 70 percent of their total water needs from groundwater production. Groundwater is also used for agricultural purposes.

Chlorinated solvents and petroleum-related contaminants are the primary contaminants of

concern at JFTB Los Alamitos. In 1994, a preliminary assessment/site inspection (PA/SI) indicated widespread chlorinated solvents in shallow groundwater at ten AOCs. Petroleum-only related contaminants were detected at seven AOCs. Eleven AOCs were found to have impacted the shallow groundwater with both solvents and petroleum-related contaminants.

Fourteen drinking water wells are within a one-mile radius of the JFTB. None of these wells produce water from the shallow aquifer that underlies the JFTB. However, production from deeper aquifers does not preclude these wells from potential contamination from the JFTB. In addition, two on post irrigation wells produce water from less than 200 feet below ground surface (bgs).

Operable Units

To facilitate data evaluation, reporting, and remedial design, the facility has been divided into three OUs: water (OU-1), soil (OU-2), and landfill water and soil (OU-3). OU-2 consists of all surface and subsurface soil at the JFTB Los Alamitos, with the exceptions of the Landfills and the areas impacted solely by petroleum hydrocarbons (petroleum-only Areas).

The status of all phases for all OUs is as follows:

- OU-1 and OU-2 Mid-term Report (Phase IIA) were submitted in August 2001.
- OU-1 and OU-2 Phase lIB field sampling is completed.
- OU-3 Phase IIB field sampling is completed.
- OU-1 and OU-2 Draft Overall Phase II reports (including HRA) was completed in September 2001.
- OU-3 Draft Overall Phase II reports (including HRA) was completed in October 2002.
- OU-3 Draft EE/CA Report was completed in April 2002.
- Draft EE/CA Addendum Report was completed in March 2003.
- Draft RI/FS Report was completed in December 2004.

IRP Cleanup Exit Strategy:

A PBC has been awarded that will address the cleanup activities at all IRP-related sites through RC. In addition, LTM will follow for five years after each site is RC.

Table 1: Performance Requirements Summary.

Performance Objective	**Performance Standards**
Achieve Remedy in Place (RIP) at the following sites by September 30, 2007, except where noted: • Camp Roberts Closed (Abandoned)Landfill (CPRO-29) LUC • Camp Roberts South Landfill (Near DDPD) (CPRO-31) LUC • Los Alamitos Landfill/Sewage/Treatment/Jet Engine Test - Landfill Closure (LAAFRC-002) LUC • Los Alamitos Hangar 2, Paint Spray Booth (LAAFRC-010) RIP by end of FY 09	Compliance with CERCLA/SARA, and NCP Army approval and Regulator approval or concurrence *(e.g., Receipt of documentation confirming RIP.)*
Achieve Response Complete (RC) and install Land Use Controls (LUC) at the following sites by September 30, 2009 except where noted • Los Alamitos Closed Small Rifle Range Ammo Storage (LAAFRC-005) RC by end of FY 07 • Camp Roberts Nacimiento Valley Landfill(CPRO- 61) RC and LUC by the end of FY 07 • Los Alamitos JP4 UST Area (LAAFRC-001) RC by end of FY 07 • Los Alamitos Northern Landfill Dual Phase extraction System Only (LAAFRC 002) • Los Alamitos UST Basewide Program Farm Fuel Office (LAAFRC-008) • Los Alamitos Building 35 Clarifier (LAAFRC-010) • Los Alamitos Building 158 (LAAFRC-008)	Compliance with CERCLA/SARA, and NCP Army approval and Regulator approval or concurrence *(e.g., Receipt of documentation confirming RC except for LAAFRC-002.)* LAAFRC-002 requires that the contractor only maintain and operate the Dual Phase Extraction System. Continue a facility- wide groundwater monitoring program supporting RC
Achieve Response Complete (RC) for the following sites by September 30, 2006: • Los Alamitos Revetments 117-9 (LAAFRC-003) • Los Alamitos West End of Flight Line (LAAFRC-003) • Los Alamitos Motor Pool (LAAFRC-008) • Los Alamitos Motor Pool Bldg 72 (LAAFRC-010) • Los Alamitos Nosedock 61 (LAAFRC-010) • Los Alamitos Flightline Pads (LAAFRC-010)	Compliance with CERCLA/SARA, and NCP Army approval and Regulator approval or concurrence *(e.g., Receipt of documentation confirming RC.)*

Table 1: Performance Requirements Summary.

Performance Objective	Performance Standards
Develop Decision Documents (DD) for RC or DDs recommending remedial action the following sites by September 30, 2007: • Camp Roberts Industrial Areas Shops (900 Block) (CPRO-10) • Camp Roberts Dry Cleaning Facility Bldg 844-846 (CPRO-16) • Camp Roberts Photo Lab Building 6001/6014 (CPRO-17) • Camp Roberts DPDD Yard, Buildings 948 & 949 (CPRO-44) • Camp Roberts Vehicle Maintenance Shops, Buildings 3023 & 3024 (CPRO-48) • Camp Roberts FMC Corp. Bldg 7026 & 7027 (CPRO-60)	Compliance with CERCLA/SARA, NCP, and associated schedule. Army approval and Regulator approval or concurrence *(e.g., Receipt of final approved Decision Document).* Implement a facility-wide ground water monitoring program supporting RC.
Perform long-term monitoring (LTM) and long-term operations (LTO) at the following sites: • All sites identified in this PWS, as required after achievement of RIP, for the duration of the contract.	Compliance with CERCLA. Army approval and Regulator approval or concurrence *(e.g., final acceptance of monitoring reports with no violations.)*
Develop and implement an exit or ramp-down strategy for LTM/LTO efforts at the following sites: • All sites identified in this PWS, as required after achievement of RIP, for the duration of the contract.	Compliance with CERCLA. Army approval and Regulator approval or concurrence *(e.g., remedial design documentation formally adopting the decision rules for ramp down and/or exit strategies).*
Complete all CERCLA 121(c) reviews required for the sites identified in this PWS throughout the duration of the contract, correction of any deficiencies noted, and consolidation of reviews into a single site-wide review conducted at the conclusion of the contract.	Army approval and Regulator approval or concurrence *(e.g., formal documentation accepting the reviews and any corrections).*

Previous Studies

1985-1986

- Alamitos Barrier Project Report, LA County Flood Control District and Orange County Water District, 1973-74, 1985-86

1988

- Solid Waste Assessment Test, Groundwater Consultants, May-88
- Air Quality Solid Waste Assessment Test, U.S. Army Environmental Hygiene Agency, Dec-88
- Hydrologic Assessment Report, Schafer Dixon Associates, Dec-88
- Point Paper of Hydrogeological Assessment Report, Schafer Dixon Associates, Dec-88
- Investigation of Buried Soil Contamination, Schafer Dixon Associates, Dec-88

1989

- Environmental Consideration, Aviation Support Facility, The Mark Group, Inc., Sep-89
- Solid Waste Assessment Test Proposal, CH2M Hill, Nov-89

1990

- Hydrogeological Assessment Report, Schafer Dixon Associates, Jun-90
- Site Investigation Report for Buildings 2, 25, 27, 37, 43, 158, JP-4 Tank Farm, West and Hansen Engineers, Inc., Jun-90
- Interim Guidance for Preparation of a Preliminary Endangerment Assessment Report, California Department of Toxic Substances Control, Jun-90

1991

- Supplemental Landfill Investigation, Environmental Management Corporation, Apr-91
- Remediation Specifications for Buildings 2, 25, 27, 37, 43, West and Hansen Engineers, Inc., Nov-91
- Site Investigation at Building 6 Underground Storage Tank, West and Hansen Engineers, Inc., Nov-91

1992

- Los Alamitos Army Airfield, Airfield Operations and Activity Annual Report, 1992
- Phase II Site Investigation Underground Tank Sites at Buildings 34 and 158; Draft, West and Hansen Engineers, Inc., Mar-92
- Phase II Site Investigation of Underground Tank Site, JP-4 Tank, West and Hansen Engineers, Inc., Mar-92
- Site Assessment Report at the JP-4 Fuel Storage Complex, Geo Research, May-92
- Groundwater Monitoring and Well Installation - CFR Test Pit, Brown and Caldwell Consultants, Jul-92
- Subsurface Investigation Report for Buildings 34 and 158, Clayton Environmental Consultants, Inc. (Clayton), Jul-92
- UST Locations, Jaykim Engineers, Aug-92
- Initial Findings Asbestos Study Services, CTL Environmental Services, Nov-92

1993

- Preliminary Assessment, Clayton, Aug-93

1993 (cont.)

- Quarterly Groundwater Monitoring Reports, Clayton, 1993, 1994, 1995

1995

- Work Plan for JP-4 Extraction Trench, Clayton, Jun-95
- Work Plan for Interim Removal Action for Containment at JP-4 Tank Farm, Clayton, Oct-95
- Work Plan for Interim Removal Action for Containment at Building 158, Clayton, Dec-95

1996

- Draft Final Site Inspection Report, Clayton, May-96
- Draft Final Remedial Investigation Work Plan, Clayton, Jul-96
- Work Plan for Interim Removal Action at Building 34/35, Clayton, Dec-96

1997

- Draft Final Dual Phase Work Plan, Clayton, Jan-97
- Work Plan for Interim Removal Action, Clayton, Apr-97
- Site and Safety Health Plan for Interim Removal Action, Smith Environmental, May-97
- Final Tank Closure Report, Morrison Knudsen Corporation, May-97
- Draft Air Emissions Inventory Report, Clayton, Jun-97
- Final Environmental Assessment/Initial Study and Finding of No Significant Impact/ Negative Declaration: Multiple Construction Project, Chambers Group, Jun-97
- Draft Work Plan for the JP-4 Tank Farm Interim Removal Action, Clayton, Jun-97
- Underground Storage Tank Closure Report for JP-4 Tank Farm, Clayton, Jul-97
- Draft Interim Removal Action Work Plan for Dual Phase Vacuum Extraction at the New CFR Training Pit, Seabee Compound and Northern Landfill, Clayton, Aug-97
- Final 1997 Annual Groundwater Monitoring Report, Clayton, Aug-97
- First Quarter 1997 Groundwater Monitoring Report, Clayton, Sep-97
- Work Plan for the JP-4 Tank Farm Interim Removal Action, Clayton, Oct-97
- Tracer Tight Leak Test of One Cut and Cover Tank and 1000 Linear Feet of Pipeline, Tracer Research Corp., Dec-97

1998

- Second Quarter 1997 Groundwater Monitoring Report, Clayton, Jan-98
- Third Quarter 1997 Groundwater Monitoring Report, Clayton, Jan-98
- Fourth Quarter 1997 Groundwater Monitoring Report, Clayton, Feb-98
- Draft Final Interim Removal Action Work Plan for Dual Phase Vacuum Extraction at the New Crash Fire Rescue Training Pit, Seabee Compound, and Northern Landfill, Clayton, Feb-98
- Results of Soil Gas Survey and Limited Geotechnical Analyses for the Northern Landfill, Clayton, Apr-98
- Executive Summary 1997 Annual Report, Clayton, Apr-98
- First Quarter 1998 Groundwater Monitoring, Clayton, May-98
- Final 1997 Annual Groundwater Report for JFTB, Clayton, Aug-98
- Final 1997 Annual Groundwater Report for the JFTB, Clayton, Jun-98
- Soil Remediation Progress Report, Clayton, Jun-98

1998 (cont.)

- DPVE Remediation System Installation, Start Up and First Quarter 1998 Report Building 35, Clayton, Jun-98
- Draft Final Remedial Investigation Report, Operable Unit No. 1, Clayton, Jul-98
- Draft Remedial Investigation Workplan for Operable Unit No. 1, Phase II, Clayton, Jul-98
- Soil Remediation Progress Report at JFTB, Clayton, Aug-98
- Water Discharge Monitoring Report, Order No. 96-18-018, NPDES No. CAG 918001, July 1998 at the JFTB, Clayton, Aug-98
- Interim Removal Action Report for the Second Quarter 1998 at Building 35, JP-4 Tank Farm, JP-4 Well Containment, and Building 158 Remediation Systems, Clayton, Sep-98
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JFTB LOS ALAMITOS

Installation Restoration Program
Site Descriptions

LAAFRC-001
JP4 UST AREA
(includes Fuel Farm Office)

OPEN SUBSITES:

SOURCE AREA

CONTAINMENT AREA

LAAFRC-001
JP4-UST AREA – SOURCE AREA

SITE DESCRIPTION

The JP-4 Tank Farm area is located in the northwest quadrant of the JFTB in an area where groundwater levels fluctuate between 9 and 12 feet below ground surface. The JP-4 area formerly contained three steel 210,000-gallon aviation gasoline and jet fuel underground storage tanks (USTs). Releases from the USTs and product lines resulted in up to 5 feet of floating product in the groundwater table. The discovery of the releases resulted in an Interim Removal Action (IRA), which included the construction of an interceptor/product extraction trench in 1995 to capture contamination down gradient (west) of the source areas. Since June 1996, no measurable thickness of product has been noted which demonstrates the effectiveness of the IRA process.

To remove the dissolved-phase contaminants in the groundwater and soil, a dual phase vacuum extraction/air sparging system (DPVE) was installed in February 1998. The DPVE system provides a way to simultaneously treat soil and groundwater by applying a high vacuum through the wells and effectively lowering the water table and extracting contaminants from the soil and groundwater. At the JP-4 Tank Farm DPVE system, the contaminated air extracted from the soil pore spaces is heated and contaminants are destroyed utilizing a propane burner and a catalytic oxidizer. The contaminants in the groundwater are extracted and absorbed in activated carbon vessels

The system is comprised of 26 extraction wells and 37 air sparging wells. The contaminants of concern consist of petroleum hydrocarbons including benzene, toluene, ethylbenzene, and xylenes (BTEX). The treatment system, sized to optimize overall capital and operational costs, handles roughly a third of the extraction wells at any given time, with an accompanying extension of total system operation time. To date it is estimated that roughly 75-80% of the total contaminant mass may have been removed, which represents most of the more easily recoverable material.

Groundwater quality at the site is monitored on a quarterly basis in up to thirty-four monitoring wells located throughout the JP-4 Tank Farm area. Every quarter a report is submitted summarizing all the groundwater monitoring activities and system's operations.

STATUS

REGULATORY DRIVER:
CERCLA, Consent Orders under State Law

RRSE: High

CONTAMINANTS OF CONCERN:
POL, Benzene

MEDIA OF CONCERN: Soil, Groundwater

PHASES	Start	End
PA	199304	199308
SI	199408	199505
RI/FS	199605	200502
IRA	199304	200709
RA(C)	200409	200709
RA(O)	200409	200709

RIP: 200709
RC: 200709

LAAFRC-001
JP4-UST AREA – SOURCE AREA (CONT.)

CLEANUP STRATEGY

Between June 2001 and June 2003, the DPVE system was focused on the western side of the plume and asymptotic levels of extraction were reached for this area that covered approximately two thirds of the initial JP-4 Tank Farm plume. However, this effort did not yield closure-range concentrations in many of the extraction wells in this area, confirming the limitations of the technology for the site conditions and indicating that it would be unrealistic to expect to achieve closure concentrations at the entire site by September 2007 utilizing this technology alone. Since 2003 DPVE efforts have concentrated on the remaining one third of the plume, which are elevated but provide an efficient use of the technology due to the contaminant rate of extraction.

As a result of the PBC award, the proposed approach for this site will utilize a combination of technologies that take advantage of the existing DPVE system to remove the contaminant mass in the areas of high concentrations and chemical oxidation, bioaugmentation and enhanced bioremediation technologies to decrease the concentrations and achieve closure within the timeframe required. This site is scheduled for RC by 30 September 2007.

LAAFRC-001
JP4-UST AREA – CONTAINMENT AREA

SITE DESCRIPTION

The JP-4 Containment system consists of a network of eight shallow groundwater extraction wells located down gradient (southwest) of the JP-4 Tank Farm plume. The wells were installed in December 1995 to provide a hydraulic barrier between the JP-4 Tank Farm plume and offsite residences. The system extracts approximately one million gallons of groundwater per year, which is treated by activated carbon vessels.

Groundwater quality is monitored on a quarterly basis and results indicate that the barrier is providing an effective hydraulic barrier.

As a long-term solution for this IRA, a phytoremediation barrier (i.e., a tree barrier) was planted in October 2001 to extract and treat groundwater in this area. The phytoremediation barrier consists of one Hundred and sixty Poplar trees in three rows spaced fifteen feet apart.

The water used to irrigate the trees is obtained from the treated discharge of the pump and treat system currently in use. Initially, all the groundwater extracted by the mechanical JP-4 containment system was utilized to irrigate the Poplar trees, as the trees mature and their roots reach groundwater, the use of the irrigation system decreased significantly.

The trees are monitored with sap flow sensor analyzers to determine the amount of water uptake on each tree (up to six trees are monitored at one time). Levels of extraction during monitoring events in the summer of 2005 indicate extraction rates up to 14 gallons per day during peak hours.

CLEANUP STRATEGY

This site is also included under the PBC award. Sap flow monitoring will continue until significant levels are reached and tree sampling (core, leaves, bark, and roots) will be conducted once significant extraction levels are reached. The mechanical operations may be discontinued in September 2007; however, tree maintenance and extraction will continue as needed until 2012.

LAAFRC-002
LANDFILL/SEWAGE TREATMENT
JET ENGINE TEST

OPEN SUBSITES:

- Landfill Closure (Former North Landfill)
- Landfill Interim Closure (Landfill IRA)

CLOSED SUBSITES:

- Former Wastewater Treatment System
- Jet Engine Test Cell
- Aircraft Buffer Zone (Former South Landfill)

LAAFRC-002
LANDFILL/SEWAGE TREATMENT/JET ENGINE TEST
LANDFILL CLOSURE

SITE DESCRIPTION

The Landfill occupies 28 acres east of the Perimeter Road in the western portion of the JFTB. Topographic elevations in the Landfill area range from 22 in the north to 17 feet above msl in the south. Between the 1940s to late 1980s, a variety of waste material were generated and potentially disposed in the Landfill. Although there are not manifests that describe the nature and exact amounts of discarded materials, it is estimated that 117,000 cy of household, industrial and military wastes were placed in the 28-acre Landfill. The estimated volume of wasted mixed with soils is 176,000 cy.

In December 1985, the State Water Resources Control Board classified all solid waste disposal sites according to their potential to adversely impact the local groundwater quality. The Landfill was listed among the highest ranked sites for the 1986 review period. Over the years, numerous investigations have been performed at the Landfill. The conclusion reached by most of the investigators was that groundwater under the Landfill area has been impacted by Landfill leachate, and it appears that the Landfill material has been in contact with the top of the aquifer. Furthermore, it was determined that contaminant concentrations detected in groundwater are likely to impact JFTB operations and/or result in off-site contaminant migration that could adversely impact public health. (Interim action has prevented any off-site impact). Groundwater concentrations in sentinel wells between the landfill and the installation boundary exceed MCLs.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: High

CONTAMINANTS OF CONCERN: VOCs, PCBs, Fuels, Phenols mixed with Non-Hazardous Debris

MEDIA OF CONCERN: Soil, Groundwater

PHASES	Start	End
PA	199304	199308
SI	199408	199602
RI/FS	199604	200310
RD	200408	200605
IRA	199909	200708
RA(C)	200408	200709
RA(O)	200409	200709

RIP: 200709
RC: 200709

CLEANUP STRATEGY

Based on the PBC award, the performance objective specified in the contract is to achieve RIP by September 30, 2007, (respective to funding the projected timeline may be shifted to a later date) with emphasis on protecting human health and the environment by reducing releases of contaminants. The landfill maintenance will continue until the five year review which is scheduled for 2012.

LAAFRC-002
LANDFILL/SEWAGE TREATMENT/JET ENGINE TEST
LANDFILL CLOSURE (CONT.)

The closure of the Landfill at the JFTB will be completed using waste consolidation into a Title 27 equivalent waste cell. Because the project is being completed under the CERCLA process and the waste consolidation will occur within an existing installation restoration site, permitting for a new waste cell is not required. However, the closure strategy will meet permit requirements, achieve regulatory acceptance by the State of California, and will achieve and sustain the five-foot separation of waste from groundwater required by State regulations (Title 27). The performance objective specified in the PBC contract is to achieve RIP by 30 September 2007.

LAAFRC-002
LANDFILL/SEWAGE TREATMENT/JET ENGINE TEST
LANDFILL INTERIM CLOSURE (LANDFILL IRA)

SITE DESCRIPTION

In April 2000, a dual phase vacuum extraction (DPVE) system was installed and began operation in the southern portion of the Landfill to remove groundwater contamination consisting of volatile organic compounds. At this IRA, groundwater monitoring is conducted within the plume area to track remedial progress as part of the IRA process and quarterly groundwater monitoring is conducted in those landfill wells not impacted by the IRA. Once remediation is completed, a new monitoring plan will be developed for the IRA area.

Chlorinated solvents have been consistently detected in groundwater beneath the inactive landfill at levels above MCLs. Since these levels are not significantly above MCLs in most of the extraction wells and the concentrations do not appear to be decreasing, the system was shut down for rebound evaluation in the second quarter of 2005.

Four consecutive quarters of methane gas monitoring were completed in the eastern perimeter of the Landfill in October 2005 which contained four soil-gas monitoring wells installed to comply with the local enforcement agency. The four soil-gas monitoring wells did not show any measurable concentrations of methane in any of the sampling events, and as a result, a request to ceased the gas monitoring program at the landfill was submitted to the local enforcement agency.

CLEANUP STRATEGY

This site is under the PBC award.

The DPVE system will continue to operate as needed during the landfill construction activities, the system will be shut down by 200709. The landfill maintenance will continue until the five year review which is scheduled for 2012.

LAAFRC-008
UST-BASEWIDE PROGRAM

OPEN SUBSITES:

- **FUEL FARM OFFICE**
- **FLIGHTLINE PADS**
- **MOTOR POOL**
- **BUILDING 158**
- **BUILDING 34**
- **HANGAR 1**

LAAFRC-008
UST-BASEWIDE PROGRAM
FUEL FARM OFFICE

SITE DESCRIPTION

The Fuel Farm Office (FFO) is located on Constitution Avenue, south of the Seabee Compound. Until recently it was used for administrative activities for aircraft refueling personnel. Presently, jet fuel is not dispensed directly from this building; however, in the past, two JP-4 fuel lines ran from the JP-4 Tank Farm to two 6,000-gallon underground storage tanks (USTs) located approximately 80 feet from the office. The USTs were removed in 1991.

An IRA at the FFO was initiated based on data obtained from soil and groundwater testing collected during the Site Inspection (SI) and Remedial Investigation (RI). The primary contaminants of concerns encountered during site investigations were volatile organic compounds (VOCs) including tetrachloroethene, trichloroethene, 1,2-dichloroethane, naphthalene, benzene, toluene, xylenes, and total petroleum hydrocarbons in the gasoline range.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: High

CONTAMINANTS OF CONCERN: POL, VOCs

MEDIA OF CONCERN: Soil, Groundwater

PHASES	Start	End
PA	199304	199304
SI	199408	200012
RI/FS	199912	200509
IRA	199603	200609
RA(C)	200408	200609
RA(O)	200408	200909

RIP: 200609
RC: 200909

The DPVE remediation system was commissioned at the FFO in June 2002 and is comprised of a network of 23 nested pairs of extraction wells. The treatment system, sized to optimize overall capital and operational costs, handles roughly a fourth of the extraction wells at any given time, with an accompanying extension of total system operation time. To date it is estimated that roughly 10% of the total contaminant mass may have been removed.

The system utilizes down-hole submersible pumps in combination with a surface extraction blower to remediate soil and groundwater. The northern section of the extraction network overlaps with the southern portion of the Seabee Compound. The monitoring wells in this area are reported as Seabee Compound wells due to their location, although they are used to measure the progress of a section of the FFO DPVE system.

The plume in the FFO is characterized by shallow (<45 feet bgs) commingled plumes of hydrocarbons and chlorinated compounds. While most of the contamination is detected in the shallow zone between 10 and 25 feet bgs, some exceedances are also detected in the deeper wells. In the most recent sampling events of 2005, the highest concentration of

benzene was 4,700 µg/l in a shallow well, and the highest concentration of TCE was 226 µg/l in a deep well.

CLEANUP STRATEGY

As a result of the PBC award, the proposed approach for this site will consist of a combination of technologies that take advantage of the existing DPVE system to remove the contaminant mass in the areas of the highest concentrations and subsequently utilize enhanced bioremediation and bioaugmentation technologies. The performance objective specified in the contract is to achieve RC by 30 September 2009. Long-term monitoring will continue until the five year review which is scheduled for 2014.

LAAFRC-008
UST-BASEWIDE PROGRAM
FLIGHTLINE PADS

SITE DESCRIPTION

The Flightline Pads are located south of the main flightline, between Taxiways 4 and 9 (Flightline Pad 1) and between Taxiways 9 and 3 (Flightline Pad 2). These pads are covered with marston matting and date back to the 1940s. The area is currently covered with native vegetation and is not used for aircraft parking. The Flightline pads were historically used to park vehicles and aircraft; however, that practice was stopped in the 1960s. There is a potential for a release of perchlorates at this site as a result of the use of jet-assisted takeoff rockets (JATO).

CLEANUP STRATEGY

This site passed Tier 2 risk assessment screening. This site had no significant exceedances above the groundwater standards or is considered within background concentrations and therefore warrants site closure. This subsite is scheduled for closure in 200709.

LAAFRC-008
UST-BASEWIDE PROGRAM
MOTOR POOL

SITE DESCRIPTION

The Motor Pool is located north of the Flightline and east of the Former Fuel Farm (Building 233). Currently, fuel pods and bladders are stored on a grassy area on the east side of Building 72 (the former Motor Pool office). In the past, vehicle maintenance fluids were stored in the building and military vehicles were parked in the area. Vehicle maintenance was conducted in this area. Currently, helicopters are parked on the tarmac slightly south of Building 72. Most of the site is covered by asphalt. There is a potential for the release of California-designated "emergent chemicals," including TCP, at this site.

CLEANUP STRATEGY

This site passed Tier 2 risk assessment screening. This site had no significant exceedances above the groundwater standards or is considered within background concentrations and therefore warrants site closure. This subsite is scheduled for closure in 200709.

LAAFRC-008
UST-BASEWIDE PROGRAM
BUILDING 158

SITE DESCRIPTION

Building 158 (Emergency Pump House) is located in the eastern side of the JFTB. It housed the emergency generator for the water reservoir (Building 411) that is located directly west of Building 158. Records indicated that a 2,000-gallon capacity underground storage tank (UST) storing #2 diesel and gasoline was installed in the 1940s to supply fuel for the emergency generator. The UST was removed in 1987. Preliminary SI investigation activities conducted at that time by the tank removal contractors indicated that significant hydrocarbon impacted soil was present in soils adjacent to, and beneath the tank invert. Three groundwater-monitoring wells were installed during the SI.

In 1996, Clayton installed a free product removal system at Building 158 as part of an interim limited containment action. Once free product was no longer present at the area, the system continued to extract groundwater for treatment, using a simple pump-and-treat system. The system was shut down in preparation for installation of a DPVE system.

In January 2000, Tetra Tech Inc. (TTI) conducted a groundwater investigation at the site. During the investigation, nine groundwater-monitoring wells were installed at six locations around the area. The TTI investigation concluded that significant petroleum hydrocarbon impacted groundwater exists beneath the Building 158 area.

Installation of a new DPVE system was moved from the CFR area, and put in operation on September 19, 2005. The new system is comprised of 15 extraction wells. The shallow extraction wells are configured with stingers, whereas the deep extraction wells have the submersible pump and blower configuration. Benzene concentrations ranged up to 85,100 µg/l in the third quarter of 2005 in one of the new extraction wells. In its first month of operation, the system extracted approximately 40 lbs of hydrocarbons per week.

CLEANUP STRATEGY

As a result of the PBC award, the proposed approach for this site will consist of a combination of technologies that take advantage of the existing DPVE system to remove the contaminant mass in the areas of the highest concentrations and subsequently utilize enhanced bioremediation and bioaugmentation technologies. This subsite will achieve RC by 200909. Long-term monitoring will continue until the five year review which is scheduled for 2014.

LAAFRC-008
UST-BASEWIDE PROGRAM
BUILDING 34

SITE DESCRIPTION

Building 34 (Fire Station Building) is located south of Enterprise Avenue and east and upgradient of Building 35. Historically, the area contained four USTs used for storage of diesel fuel and gasoline. These USTs were removed and 12,000 cubic yards of impacted soil was excavated and disposed. Groundwater at this site has been impacted by petroleum hydrocarbons. The downgradient extent of this plume has also been observed downgradient of Building 34, in the eastern perimeter of the DPVE system operating at Building 35.

Concentrations of 1,000 μg/L of TPH-g and 250 μg/L of benzene are found in the Building 34 area. Monitoring well N19-1 located in one of the former UST areas, has historically exhibited the highest contaminant concentrations, and in the last quarterly monitoring event, it exhibited TPH-g and benzene concentrations of 42,000 μg/L and 11,400 μg/L, respectively. The isopleths derived for this plume indicate that the contamination likely extends underneath the building. The Hydropunch® sampling conducted in October 2004, showed TPH-g concentrations up to 1,460 μg/L in an area approximately ten feet west of the building's west wall.

CLEANUP STRATEGY

This subsite is scheduled for RC by 200909 and long-term monitoring will continue until 201409.

The technical approach for this site includes installing a small skid-mounted DPVE system and operating it for one year. The purpose of this system is to reduce the mass and elevated concentrations of contaminants that have been observed in the last few sampling events. This would remove a large mass in the concentration ranges. Subsequently, bioaugmentation and enhancement will be utilized by ORC® injection in three locations.

LAAFRC-008
UST-BASEWIDE PROGRAM
HANGAR 1

SITE DESCRIPTION

Hangar 1 is located directly north of the center of the flightline and houses the aircraft control tower. Historically, Hangar 1 has been used for aircraft and helicopter maintenance and incorporated a removed 10,000-gallon waste oil tank. Solvents, lubrication oils, fuels, and other engine fluids were, and are currently, used in this area. This area also contains a wash-rack for cleaning aircraft. Hangar 1 passed Tier 2 risk assessment screening. This site has significant exceedances of metals above the groundwater standards.

CLEANUP STRATEGY

This subsite will be RC as of 200909.

LAAFRC-010
WASHRACK, CLARIFIERS, SUMPS, SEABEES

OPEN SUBSITES:

- **NOSE DOCK 61/CLARIFIER & HANGAR (BLDG 61)**
- **HANGAR 2 & PAINT SPRAY BOOTHS (BLDG 9/10/11)**
- **BLDG 35**
- **SEABEE COMPOUND (BLDG 202)**

LAAFRC-010
WASHRACK, CLARIFIERS, SUMPS, SEABEES NOSEDOCK 61/CLARIFIER & HANGAR (BLDG 61)

SITE DESCRIPTION

The Nosedock 61 Hangar is currently used to park, maintain and operate twin-prop aircraft for use by the Orange County Vector Control Department. The Nosedock 61 Clarifier is located directly south of the marston-matting covered equipment storage lot, and is also directly west of the JP-4 refueling stands. Laboratory analysis of direct-push groundwater samples from the area of the Nosedock 61 Hangar detected metals, VOCs, and TPH-D. Laboratory analysis of soil samples from the site of the Medfly Hangar did not detect any of the compounds tested. Laboratory analysis of direct-push groundwater samples from the site of the Medfly Clarifier detected TPH-G and TPH-D. Laboratory analysis of soil samples from the site of the Medfly Clarifier detected VOCs and JP-4. This site passed Tier 1 risk assessment screening. This site had no significant exceedances above the groundwater standards or is considered within background concentrations and therefore warrants site closure.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: High

CONTAMINANTS OF CONCERN: Metals, POL, VOCs, PCBs

MEDIA OF CONCERN: Soil, Groundwater

PHASES	Start	End
PA	199304	199308
SI	199408	199602
RI/FS	200408	200509
IRA	199609	200604
RA(C)	200408	200609
RA(O)	200408	200909

RIP: 200609
RC: 200909

CLEANUP STRATEGY

This subsite is scheduled for RC in 2007.

LAAFRC-010
WASHRACK, CLARIFIERS, SUMPS, SEABEES HANGAR 2 & PAINT SPRAY BOOTHS (BLDG 9/10/11)

SITE DESCRIPTION

Hangar 2/Building 9 is located directly west of Hangar 1 and was built for aircraft maintenance, engine overhaul and body repair. Solvents, lubricants, fuels and other engine fluids were and are currently still used. The wash-rack north of Hangar 2 is used extensively for cleaning aircraft.

Hangar 2/Building 9 passed Tier 2 risk assessment screening. However, groundwater monitoring events indicate that TCE is the predominant contaminant at this site. Based on the lack of TCE daughter products, it has been concluded that a combination of enhanced bioremediation and bioaugmentation will be effective to remediate TCE.

CLEANUP STRATEGY

As a result of the PBC award, the proposed approach for this site will consist of enhanced bioremediation and bioaugmentation. The performance objective specified in the contract is to achieve RC by 30 September 2009. Long-term monitoring will continue through 2014.

LAAFRC-010
WASHRACK, CLARIFIERS, SUMPS, SEABEES BUILDING 35

SITE DESCRIPTION

Building 35 is located near the center of the JFTB Los Alamitos. It has been used as the engineering maintenance facility since the 1940s. It includes storage yards, warehousing, metal fabricating, wood fabricating, plumbing and electrical shops, painting facilities, a washrack, and an industrial wastewater clarifier. Materials handled at this site include solvents, fuels and waste chemicals generated during maintenance activities. No records exist of spills or disposal activities. Previous investigations indicate the presence of volatile organic compounds (VOCs) in the soil, and VOCs and semi volatile organic compounds (SVOCs) in the soil.

Based on past use of the Building 35 Area as a maintenance facility with a washrack and clarifier, the SI was designed to detect fuels and solvents that may have been spilled or disposed at this site. In the SI, five soil boring locations were sampled form the 1, 5, and 10-foot bgs depths and were analyzed for VOCs and TPH-D& -G. Results indicated that VOCs and TPH-D& -G were present. Evaluation of this SI data resulted in recommendation for an RI/FS in this area.

As recommended in the SI Report, an RI Phase I was conducted to verify the SI results and delineate the lateral and vertical extent of the soil hot spot. In the RI Phase I, five soil boring locations were sampled at 5 and 10 feet bgs and were analyzed for VOCs, SVOCs, CAM metals, hexavalent chromium, and organic lead.

Preliminary review of the RI Phase I soil and groundwater data confirmed the presence of elevated VOCs in this area. VOCs reported above the groundwater PRG are TCE, PCE, 1,2-DCE, 1,1-DCE, and vinyl chloride. Long-term monitoring will continue through 2014.

The remediation of Building 35 presents the biggest remediation challenge at the JFTB because of the aerial extent, types of contaminants, and concentrations encountered. The most recent groundwater sampling results indicate that the highest TCE concentrations (up to 28,800 µg/L) are present in the most westerly area of the plume, beyond the reach of the extraction wells. There are two plumes with concentrations greater than 50 µg/L of TCE (10 times the MCL of TCE). The plume directly south of Building 35 covers an area of approximately 5,900 sq. ft. and is identified as the “small plume”. The highest concentration in this area is 121 µg/L of TCE. This represents the area where most of the extraction wells have been active.

There is a separate “large plume” approximately 150 feet west of the “small plume”. This is the area that exhibits TCE concentrations of up to 28,800 µg/L and covers an area of approximately 32,450 sq. ft. Delineation of these plumes is based on groundwater monitoring and Hydropunch® data collected in 2003 and 2004.

LAAFRC-010
WASHRACK, CLARIFIERS, SUMPS, SEABEES BUILDING 35 (CONT.)

SITE DESCRIPTION

On August 2005, installation of a small satellite DPVE system was completed and connected to four extraction wells to treat soil and groundwater contaminations at the western portion of the plume area. This satellite system was deemed necessary to effectively target this highly impacted zone which was approximately 400 feet away from the main treatment pad. Both the satellite and the main Building 35 system share a common discharge point for treated groundwater.

CLEANUP STRATEGY

As a result of the PBC award, the proposed approach for this site will consist of a combination of technologies which will include DPVE, bioaugmentation and biostimulation. The performance objective specified in the contract is to achieve RC by 30 September 2009.

LAAFRC-010
WASHRACK CLARIFIERS, SUMPS, SEABEES SEABEE COMPOUND (BLDG 202)

SITE DESCRIPTION

The Seabee Compound, a fenced area located at the northwest corner of the intersection of Enterprise Avenue and Essex Road, was used by a U.S. Naval Reserve Construction Battalion Unit until 1994. The six buildings in this area were used for vehicle and heavy equipment maintenance, hazardous material storage, battery maintenance and storage, and administrative uses.

Within the compound, several historical activities could have resulted in environmental concerns. Records indicate that solvents were used extensively. A 7,500 gallon UST was used for the storage of waste solvents 50 feet west of the compound, and a three-stage clarifier was used to collect wash water used for cleaning parts and vehicles adjacent to Building 202.

Based on past activities where solvents and fuels were used and stored, the SI was designed to detect fuel and solvents that may have been spilled or disposed of at this site. In the SI, five soil boring locations were sampled from the 10-foot bgs depth and were analyzed for VOCs and TPH-D&G. Results indicated that some parameters from each of these methods were present. Evaluation of these SI data resulted in a recommendation for a RI/FS for this area.

As recommended in the SI Report, an RI Phase I was conducted to verify the SI results and to delineate the lateral and vertical extent of the soil hot spot. In the RI Phase I, one soil boring location to 5 and 10 feet bgs was sampled and analyzed for VOCs and TPH-D&-G.

Preliminary review of the RI Phase I data confirmed the presence of elevated VOCs in the shallow groundwater in this area. Requested funding was received to perform an IRA in this area. An IRA is an Interim Removal Action designed to protect human health and the environment by controlling migration of, and significantly reducing concentrations of soil and groundwater contamination.

Dual Phase Vacuum Extraction (DPVE) was selected as the treatment technology to remove VOCs from the soil and groundwater in this area. Preparations to implement this DPVE IRA are in progress, start-up began in July of 1998, and normal interim remedial action was completed at the area in September 2000.

Since the inception of the program at this location, quarterly groundwater monitoring was conducted on monitoring wells located in the area. Historical plume maps were developed to document the nature of the plume during this period. Data collected had indicated a downward trend in the VOC concentrations in the subsurface. During the operational life of the system, a runtime of over 90 percent was recorded. Approximately 180 pounds of VOCs were extracted from the subsurface. Over 99 percent of the VOCs were from soil vapor. Over 2 million gallons of groundwater was extracted, treated and discharged to a nearby storm drain.

LAAFRC-010
WASHRACK CLARIFIERS, SUMPS, SEABEES SEABEE COMPOUND (BLDG 202) (CONT.)

An RI/FS is being implemented at this site of concern. During the RI, one location was sampled at 5 and 10 feet bgs and was analyzed for VOCs and TPH-D& -G. Of these samples, no analytes were detected above the soil standards.

The levels of diesel and gasoline found in the soil are not considered significant. Based on the above evaluation, these results indicate that soil contaminants are not present at significant levels in this area.

CLEANUP STRATEGY

The site was RC in 2002, but long-term monitoring will continue through 2014.

PBC LOS AL
PBC - SITEWIDE TOTAL

SITE DESCRIPTION

A PBC has been awarded that will address the cleanup activities at all IRP-related sites through RC. In addition, LTM will follow for five years after each site is RC.

CLEANUP STRATEGY

It is anticipated that dual-phase extraction will continue to be performed as a remedial action. A combination of technologies will be proposed for many sites. Soil excavation is also expected at LAAFRC-003 and LAAFRC-005, and LTM will be performed at site LAAFRC-003 upon closure of the landfill.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Medium

CONTAMINANTS OF CONCERN: VOCs, SVOCs, Metals, POL

MEDIA OF CONCERN: Soil, Groundwater

PHASES	Start	End
PA	199409	199509
RI/FS	199801	200503
RD	200504	200709
IRA	199609	200709
RA(C)	200508	200709
RA(O)	200508	201209

RIP: 200709
RC: 201209

IRP No Further Action Sites Summary

AEDB-R#	Site Title	Documentation/Reason for NFA	NFA Date
LAAFRC-003	CFR, Revetments, Aircraft Wash	Cleanup complete DD pending NFA letter received	200507
LAAFRC-005	Rifle Range/Ammo Storage	Cleanup complete NFA letter received	199906
LAAFRC-011	Pesticide Storage Area	Cleanup complete NFA letter received	200012

Initiation of IRP: April 1992

Past Phase Completion Milestones

1992
JP-4 Removal, July

1993
PA Initiation, February
PA Installation, August

1994
PA Community Meeting, March
SI Initiation, July

1995
RAB Established, October
Interim Remediation, Continuation, October
Final Draft SI Completed, October

1996
Remedial Investigation, Initiation, April
Draft RI Workplan Submitted, May
JP-4 Free product removal Completed, July
Interim Soil/Groundwater Treatment System Design, July
Final RI Workplan, July
Draft Human Health Risk Assessment Workplan, December
Interim Soil/Groundwater, December

1997
Time Critical Removal Action and Interim Removal Action Workplan, January
Risk Assessment Workplan, April
Update Site-wide Health and Safety, May
Draft Workplan for IRA at JP-4, May
Underground Storage Tank Closure Report, July
Draft Final Workplan JP-4 Tank Farm IRA, October
Draft RI Report OU-1, October

1998
Final IRA Workplan Seabee Compound, February
Final IRA Workplan CFR, February
Final IRA Workplan North Landfill, February
Final RI Report OU-2 Phase I, December
Draft RI Workplan OU-2 Phase II, December

Schedule

1999
Engineering Evaluation/Cost Analysis Workplan, July
Completed bioremediation for soil from JP-4, September
Operations and Maintenance Plan for DPVE units, November

2000
Draft RI Workplan OU-1, Phase II, February
Final RI Report OU-1, Phase I, March
Draft RI Workplan OU-3, Phase II, March

2001
Final RI Report OU-3 Phase I, May

2003
Final EE/CA Landfill, October
Draft RI Risk Assessment, December

2004
Draft RI/FS Report, December

Projected ROD/DD Approval Dates: N/A

Projected Construction Completion Date: 2007

Scheduled Five-Year Review: 2014

Estimated Completion Date of IRP (including LTM phase): 2012

Phase Completion Milestones:
The milestones will be established when the PBC is awarded and the Management Action Plan is approved.

RC for the following sites by end of FY06
- Los Alamitos Revetments 117-9 (LAAFRC-003)
- Los Alamitos West End of Flight Line (LAAFRC-003)
- Los Alamitos Motor Pool (LAAFRC-008)
- Los Alamitos Motor Pool Bldg 72 (LAAFRC-010)
- Los Alamitos Nosedock 61 (LAAFRC-010)
- Los Alamitos Flightline Pads (LAAFRC-010)

RC for the following sites by end of FY07
- Los Alamitos JP4 UST Area (LAAFRC-001)
- Los Alamitos Closed Small Rifle Range Ammo Storage (LAAFRC-005)
- Los Alamitos Landfill/Sewage/Treatment/Jet Engine Test – Landfill Closure (LAAFRC-002)

RC for the following sites by end of FY09
- Los Alamitos Building 35 Clarifier (LAAFRC-010)
- Los Alamitos Building 158 (LAAFRC-008)

RIP for the following site by end of FY09
- Los Alamitos Hangar 2, Paint Spray Booth (LAAFRC-010)

ROD/DD Approval Dates: N/A

Completion Date of all RA(C) Activities: 2009

Completion Date of IRP (including LTM phase): 2014

Prior Years Funds

Total Funding up to FY04: $718.0K

Year	Site Information	Expenditures	FY Total
FY05		$11,162K	**$11,162K**

Total Prior Year Funds: $12,598.0K

Current Year Requirements

Year	Site Information	Expenditures	FY Total
FY06		$10,580.405K	**$10,580.405K**

Total Current Year Funds: $10,580.405K

Total Future Requirements: $3,785K

Total IRP Program Costs: $26,963.405K

JFTB LOS ALAMITOS

Military Munitions Response Program

MMRP Summary

AEDB-R MMRP Sites/Sites RC: 1/0

AEDB-R Site Types:
1 Small Arms Range

Contaminants of Concern: Lead

Media of Concern: Soil

Completed REM/IRA/RA: None

Total MMRP Funding:
Prior Years (thru FY05): $25.0K
Current Year (FY06): $0K
Future Requirements (FY07+): $928.0K

Duration of MMRP:
Year of MMRP Inception: 2002
Year of RA Completion: 2017
Year of MMRP Completion (including LTM): 2017

MMRP Contamination Assessment

MMRP Contamination Assessment Overview

The phase 3 Army Range Inventory was completed at JFTB Los Alamitos in August 2003. The inventory identified one site as eligible for the MMRP. The Phase 3 Inventory serves as the preliminary assessment under CERCLA. A site inspection was initiated in January 2006.

MMRP Cleanup Exit Strategy: It is expected that the SI will be completed as of December 2007. Focus of the SI will be to gather data for risk modeling to determine remedial requirement.

2003

Final US Army Closed, Transferring and Transferred Range/Site Inventory for Los Alamitos JFTB, CA, TechLaw, Inc., April

LOS ALAMITOS

Military Munitions Response Program Site Description

LATB-001-R-01
PHELAN SMALL ARMS RANGE

SITE DESCRIPTION

This transferred range is located approximately 32 miles northwest of the City of San Bernardino in the northern portion of a privately owned ranch located near Phelan, California, just east of Highway 138. The range is comprised of 3 acres and consisted of targets placed on a small retaining wall positioned at the base of a mountain, bleachers, and a tower. Only small arms were used at this range by Army personnel. According to an employee of the 63d RSC, the range was used twice in the early 1990s, pursuant to a five-year lease signed on August 15, 1992, between the Department of the Army and the private landowner. After a renewal of the lease in 1997, the lease was terminated in January 2002. There have been no known response actions at this range. The land was never owned by the Department of Defense. The site is currently used as a firing range by the Boy Scouts and the local Police Department. The site does not qualify as FUDS property because it was used after 1986.

STATUS

REGULATORY DRIVER: CERCLA

RAC Score: Negligible Risk

CONTAMINANTS OF CONCERN: Lead

MEDIA OF CONCERN: Soil

PHASES	Start	End
PA	200205	200308
SI	200601	200712
RI/FS	201410	201509
RD	201510	201609
RA(C)	201610	201709

RC: 201709

CLEANUP STRATEGY

This site is thought to belong to the 63d RSC, a tenant on JFTB Los Alamitos. Future actions are likely to be addressed by the 63d RSC. It is expected that the SI will be completed as of FY08.

Schedule

Initiation of MMRP: Non-Operational Range Report, 2003

Past Phase Completion Milestones:

2003

- PA, August

Projected ROD/DD Approval Dates: N/A

Projected Construction Completion: 2017

Scheduled Five-Year Review: N/A

Estimated Completion Date of MMRP (including LTM phase): 2017

Prior Years Funds

Total Funding up to FY04: $25.0K

Year	Site Information	Expenditures	FY Total
FY05		$0K	**$0K**

Total Prior Year Funds: $25.0K

Current Year Requirements

Year	Site Information	Expenditures	FY Total
FY06		$0K	**$0K**

Total Current Year Funds: $0K

Total Future Requirements: $928.0K

Total MMRP Program Costs: $953.0K

Community Involvement

In FY95, the Restoration Advisory Board was established and continues to meet on a quarterly schedule.